

# 12mm Rotary Encoder with LED

## Type DPL12 Series

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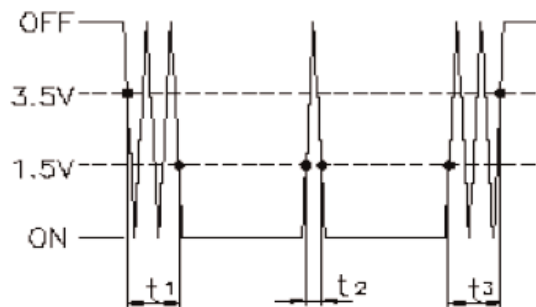
12mm Rotary incremental encoder with LED for use in electronic equipment. Can be supplied with or without switch with customisation to standard options.

### Key Features

- 12mm Rotary Encoder
- Incremental Type
- Push on Switch Option
- Various Shaft Lengths
- LED Colour Options
- Detent Options

### Characteristics - Electrical

|  |                                  |
|--|----------------------------------|
| <b>Pulses:</b>                             | 24                               |
| <b>Contact Rating:</b>                     | 0.5mA 5VDC                       |
| <b>Dielectric Strength:</b>                | 300VAC / 1mA, 1 minute           |
| <b>Insulation Resistance (min):</b>        | 100M ohms at 250VAC              |
| <b>Operating Speed (RPM):</b>              | 60 RPM                           |
| <b>Switch Power Rating (where fitted):</b> | 16VDC 3A                         |
| <b>Switch Contact Resistance:</b>          | 100m ohm Max                     |
| <b>Electrical Travel:</b>                  | Continuous                       |
| <b>Rotational Noise:</b>                   | t2 = 2.0 ms max (see below)      |
| <b>Chattering:</b>                         | t1 & t3 = 3.0 ms max (see below) |



Code Off area V = 3.5V or more. Code on area V=1.5V or less

|                       |  |
|-----------------------|--|
| <b>LED</b>            | Switch – Dual colour – see below for characteristics<br>No Switch Single colour– see below for characteristics |
| <b>Colour options</b> | No Switch – Red, Green, Blue<br>Switch – 1: Blue/Green, 2: Blue/Orange, 3: Green/Red                           |







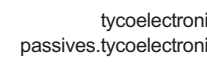

### Characteristics - Mechanical

|  |                          |
|--|--------------------------|
| <b>Total Mechanical Travel:</b>              | Continuous               |
| <b>Detents:</b>                              | 0, 24                    |
| <b>Switch Operating Force:</b>               | 400+/- 200gf             |
| <b>Switch Travel:</b>                        | 0.5mm                    |
| <b>Shaft Type:</b>                           | F – Flatted, K - Knurled |
| <b>Shaft Length (from Mounting Surface):</b> | See Chart below          |

### Characteristics - Environmental

|                              |                     |
|------------------------------|---------------------|
| <b>Operating Temperature</b> | -40 - +85 degrees C |
| <b>Rotational Life</b>       | 30,000 Cycles       |

### Output Signal Format

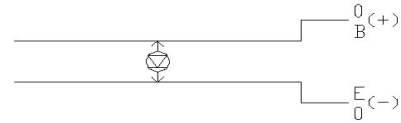
| Shaft Rotational Direction | Signal           | Format  |
|----------------------------|------------------|---|
| Clockwise                  | A (Terminal A-C) | OFF <br>ON  |
|                            | B (Terminal B-C) | OFF <br>ON  |
| Anticlockwise              | A (Terminal A-C) | OFF <br>ON  |
|                            | B (Terminal B-C) | OFF <br>ON  |

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### LED Characteristics - Without Switch

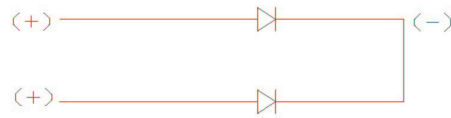
|                       |                   |
|-----------------------|-------------------|
| Reverse Current       | $[I_R] = 10\mu A$ |
| Reverse Voltage       | 5V                |
| Operating Temperature | -40 - +85 deg C   |



| Emitted Colour | Power Dissipation | DC Forward Current | Forward Voltage |      |
|----------------|-------------------|--------------------|-----------------|------|
|                |                   |                    | Typical         | Max. |
| Blue           | 100mW             | 20mA               | 3.2V            | 4.0V |
| Red            | 58mW              | 25mA               | 1.8V            | 2.3V |
| Green          | 48mW              | 20mA               | 2.0V            | 2.4V |

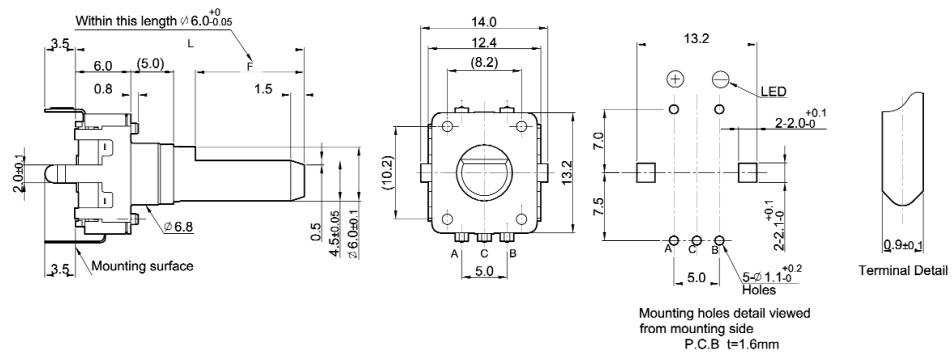
### With Switch

|                       |                   |
|-----------------------|-------------------|
| Reverse Current       | $[I_R] = 10\mu A$ |
| Reverse Voltage       | 5V                |
| Operating Temperature | -40 - +85 deg C   |



| Emitted Colour | Power Dissipation | DC Forward Current | Peak Forward Current | Forward Voltage |      |
|----------------|-------------------|--------------------|----------------------|-----------------|------|
|                |                   |                    |                      | Typical         | Max. |
| Red            | 170mW             | 30mA               | 185mA                | 1.95V           | 2.5V |
| Orange         | 75mW              | 30mA               | 195mA                | 2.1V            | 2.5V |
| Blue           | 105mW             | 30mA               | 150mA                | 3.3V            | 4.0V |
| Green          | 105mW             | 25mA               | 130mA                | 3.1V            | 3.8V |

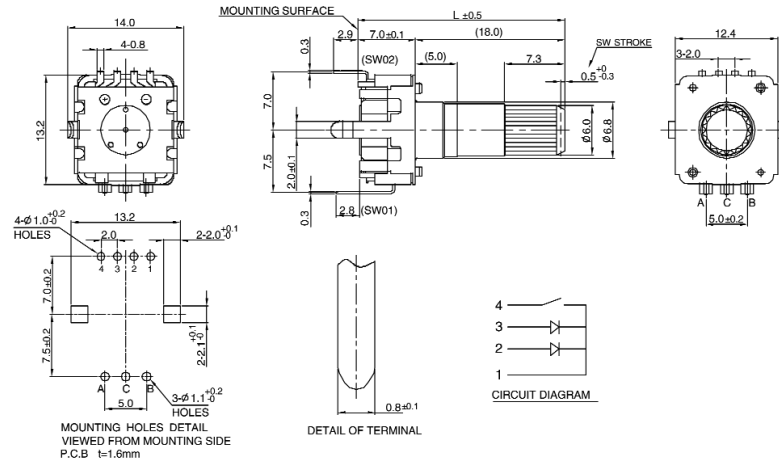
### Dimensions DPL12V



# 12mm Rotary Encoder with LED

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### Dimensions DPL12SV



### Shaft Length Without Switch

| Type | Dim                       | Options (mm) |    |    |
|------|---------------------------|--------------|----|----|
| K    | L (from mounting surface) | 24 only      |    |    |
| F    | L (from mounting surface) | 17.5         | 20 | 25 |
|      | F                         | 5            | 7  | 12 |

### Shaft Length With Switch

| Type | Dim                       | Options (mm) |    |    |
|------|---------------------------|--------------|----|----|
| K    | L (from mounting surface) | 25 only      |    |    |
| F    | L (from mounting surface) | 18.5         | 21 | 26 |
|      | F                         | 5            | 7  | 12 |

### LED Colour Codes

| Switch Option             | Code | Description   |
|---------------------------|------|---------------|
| Switch (Dual Colour)      | 1    | Blue / Green  |
|                           | 2    | Blue / Orange |
|                           | 3    | Green / Red   |
| No Switch (Single Colour) | R    | Red           |
|                           | G    | Green         |
|                           | B    | Blue          |

### How to Order

| DPL12                                     | V            | N                          | 24             | A            | 20                 | F                          | R                  |
|---|--------------|----------------------------|----------------|--------------|--------------------|----------------------------|--------------------|
| Common Part                               | Orientation  | Detent                     | Pulses         | Bush Details | Shaft Length       | Shaft Style                | LED Colour         |
| DPL12 – no switch<br>DPL12S – with Switch | V - Vertical | N - None<br>24 – 24 Clicks | 24 – 24 Pulses | A – 5mm      | See Relevant Table | F - Flatted<br>K - Knurled | See Relevant Table |